

THE MOTOR AGE

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GERMANY IN THE VANGUARD

Berlin, Aug. 4.—Germany has no intention of lagging behind in the automobile race—the race in manufacturing. At every turn are seen the unmistakable signs of the fact that Germany is rapidly developing into one of the greatest factors in the motor industry, a factor with which the other nations will have to figure seriously. The rising generation of German engineers is strong on the subject of motor-vehicle construction, to which several of the eminent inventors and constructors

of the past have devoted a lifetime of work and study. When such a competitor appears on the field, it is time to take cognizance of his presence and not wait, as did the English bicycle manufacturers, with the self-satisfactory but delusive conviction that "nobody can interfere with us, much less distance us."

The progress made by the Germans in the motor-vehicle industry was shown at the Paris Exposition and was demonstrated to be sufficiently menacing to cause

anxiety to those Americans who have an eye to the future foreign trade, of which they should have the lion's share.

A particularly striking example of German readiness to follow up all chances for gathering information by making practical application of the knowledge obtained is furnished by the Benz Co. of Mannheim. Its recently installed exhibit of motor vehicles at the Frankfort exhibition comprised a number of machines built since the installation of the company's original exhibit at the Paris exposition and which embody the latest improvements developed by other makers. These vehicles are soon to replace the first exhibit made at Paris, the original machines to be returned home.

When a manufacturing company studies the products of its competitors at an exhibition so closely that it is able to erect a new lot of machines during the course of the show in order to have embodied in the vehicles the latest ideas in the construction of both important and minor details, that firm must justly be considered as a strong rival. Much can be learned at a trades exposition and the representatives of many concerns return home loaded with practical information, but it is rare for an exhibitor to hurry up such work to the extent of making two exhibits at one exhibition, the second to supplant the first.

Another exhibitor at the Frankfort show, the de Dietrich Co. of Niederbrann, has sought to obtain immediate as well as future commercial results from its display by selling outright vehicles placed on exhibition. The attempt proved successful as nearly every automobile shown was marked sold after the first few days of the show.

Messrs. Cudell & Co. of Aix-la-Chapelle, the German de Dion licenses, also exhibited at Frankfort, but being previously overbooked with orders refrained from making sales except on long-time contracts.

Makers of parts and accessories took advantage of the Frankfort gathering in order to present their latest novelties and

the reports of such exhibitors show that there were many manufacturers on the ground to see and to buy, as well as individual buyers and the curious.

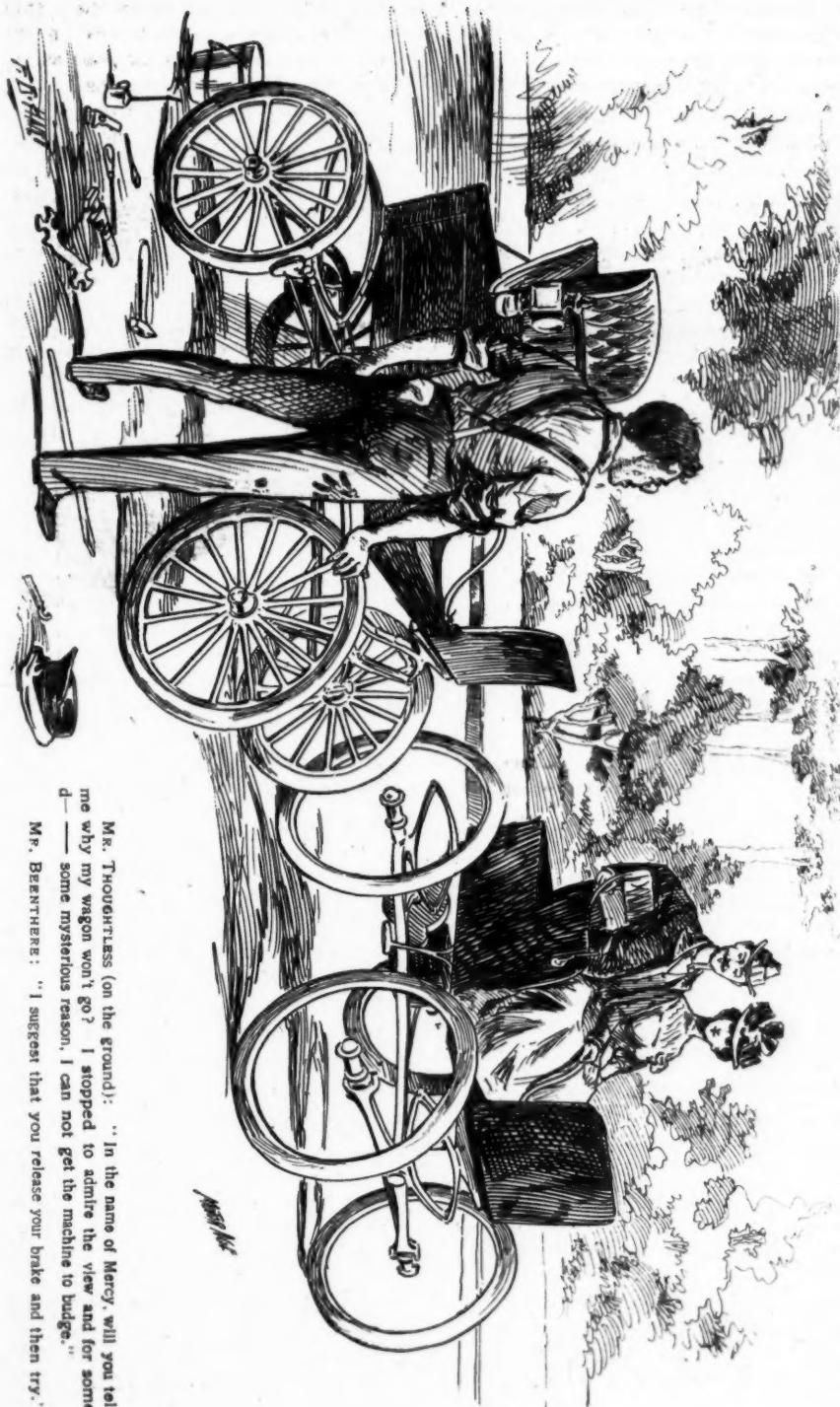
The same wide-awake spirit in evidence at Frankfort marked the Nuremberg show, which also presented with great force the almost complete story of German progress in automobile manufacture from the crude genesis of the industry to the present revelation of numerous practical successes.

Several cars mechanically propelled by manual power were shown, including one which had been used by Emperor Maximilian in 1816. Various stages of progress in the art of mechanical propulsion brought the exhibit up to the original steam carriage built in Nuremberg in 1835. It was similar in principle to an English steam car built in 1834, but as its inventor had never been without the limits of Nuremberg in his life it is safe to conclude that his attempt was original.

Though the first German steam carriage was built at Nuremberg, the Nuremberg exhibit presented no modern German steam vehicles by way of contrast. Alert though the German may be to the general progress of the automobile industry he has seemingly been content to let the development of the steam vehicle in his country rest on the fact that in Nuremberg in 1835 one steam wagon was invented and made. In modern production he pins his faith to electricity and the explosive motor.

Regardless of the power medium employed the German is in the main following the lead of American automobile builders in the work of hastening the metamorphosis of the practical road vehicle for common use instead of directing his energies toward the production of racing machines to rival the advances made in this line by the sport loving French. Thus in the matter of commerce Germany of all European countries may be considered as the most likely and dangerous competitor for the United States. Germany is watching its competitors with shrewd eyes. Its competitors will profit by watching Germany.

ONE OF THE WOES OF THE NOVICE



MR. THOUGHTLESS (on the ground): "In the name of Mercy, will you tell me why my wagon won't go? I stopped to admire the view and for some d— some mysterious reason, I can not get the machine to budge."

MR. BEEN THERE: "I suggest that you release your brake and then try."

THE NEW ORIENT VICTORIETTE

It was a long time ago that the Waltham Mfg. Co. of Waltham, Mass., first began experimenting with self-propelled vehicles. They were fully convinced that the future of the business justified them

and unlimited resources would permit, they determined to carry out in the manufacture of automobiles. This statement is made from the writer's knowledge of the personnel of the company, his ex-



WALTHAM MFG. CO.'S NEW ORIENT VICTORIETTE.

in embarking in it. The experiments were conducted in various lines with the object of starting right.

The reputation that the company has established in the manufacture of bicycles, of turning out the very best that mechanical ingenuity and skill, the best obtainable material and workmanship

periences with their products and personal inspection of their factory and factory methods.

With this determination, they decided that it would be dangerous to their high reputation to offer to the public any sort of vehicle that has not stood the test of time and severe usage. Accordingly they

began importing De Dion, and, later, Aster motors, adding such improvements as would best adapt them to American purposes and to American roads, and began building Orient tricycles and Orient Autogos—or quadricycles. Later, as announced in *The Motor Age*, they offered their Orient motor bicycle, and now, to complete their line of light, self-propelled vehicles, they offer the Orient Victoriette.

This Victoriette, as shown in the illustration, is of the victoria type, but somewhat smaller than the ordinary victoria, and is built to the designs of the Waltham company. It is fitted with a 3½-horsepower water-cooled Aster or De Dion motor. For a carriage of this

weight, for two persons, the power of the motor has been found sufficient, with the speed changing gear, to climb all hills, not excepting Boston's famous Corry Hill, which is considered the worst in the vicinity of the Hub and is certainly as steep as any vehicle could be expected to climb.

Although the Victoriette is intended for only two persons, there is an auxiliary seat in front, over the water cooler, by means of which one or two additional passengers can be carried over suitable roads.

The price of this attractive vehicle is \$925 without top, and \$1,000 with top. Orders are now being accepted for October delivery.

"SHAKE WELL BEFORE USING"

Working drawings and working results are not always harmonious factors in the manufacture of machines. The designing and manufacturing skill employed in the production of machinery may be above reproach, yet they are seldom guarantees of perfect operation of the completed article. Hence it is common in manufactories which produce machinery supposed to be ready for immediate operation at the time of shipment to test for running efficiency every machine when completed.

In the case of large engines and other appliances which are erected with considerable work at their final destination such precautionary measures are impracticable, but in the case of small machines which are shipped complete, factory tests are the only safe insurance against consequent trouble in some form or other. Especially is it desirable to be entirely on the safe side in the production of hydro-carbon engines and other motors whose mechanical design and construction are yet matters of considerable experiment and susceptible to no mean amount of improvement.

There is now a wide demand for light complete gasoline motors for au-

tomobiles and motorcycles. These are to be supplied by their makers to parties in various sections of the country and who may or may not be well qualified to correct small errors in manufacture and assembling. If every motor be tested thoroughly before leaving the factory, shipments can be safely made without fear of expensive troubles in getting said motors into working order on the machines for which they are intended.

It is not an insult to modern precision methods of manufacture to test completed machines. It is merely a safeguard against oversight, unavoidable errors and future expense. Furthermore, the matter of factory tests is a matter of manner as well as of good policy.

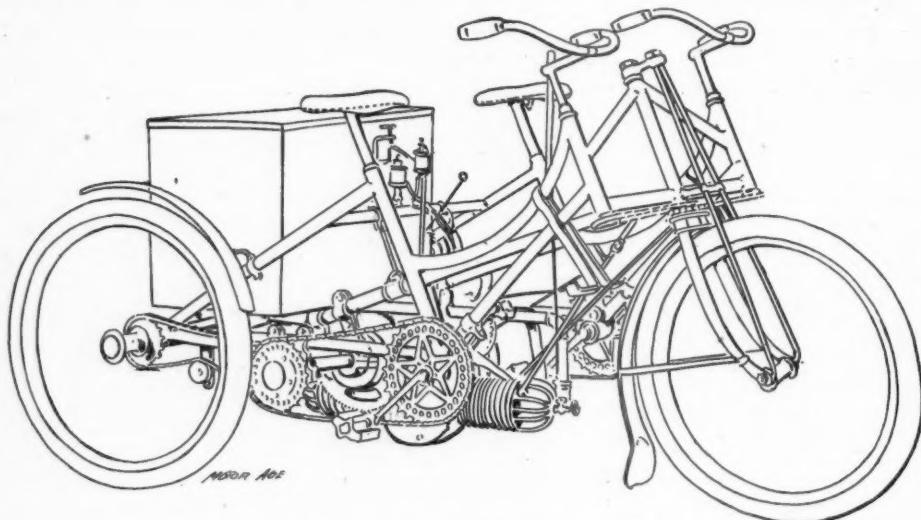
In the particular case of the gasoline motor it is not worth while making working tests prior to shipment unless those tests be thorough and severe. To place a motor on a shop jig and run it under ideal conditions is no test except in name and of no value. At this stage of the industry it is wise, and, in the long run, economical, to test vehicle motors upon vehicles; to operate them under exactly the same circumstances as will be met in practical usage; to put them upon

automobiles and run them out over rough and hilly roads under trying conditions; to "shake well before using," as commercial products to be forwarded here and there to unknown and sometimes to inexperienced parties.

Let it be supposed that a manufactory for the production of motors be supplied with an automobile of such construction that motors may be rapidly attached and operated to drive the machine. Then the work of testing the motors as they are made can be conducted in a manner which will add but little expense and in-

reducing gear for use on hills; an omission which evidently means that the motors are capable of climbing grades at regular speed.

Perhaps, in the future when the manufacture of automobile motors has been reduced to a proposition as simple and sure as the present production of bicycles, there will be no need of testing apparatus in the factory except for experimental models, but so long as there is much to be learned concerning motors by those who make them and especially by those who use them, the work of



THE CREST MOTOR TESTING TRICYCLE.

convenience to the total cost of the engines.

The accompanying illustration presents a motor tricycle which is used for the purpose of testing motors by the Crest Mfg. Co., of Cambridgeport, Mass. It is the only automobile made by this company, as the concern does not manufacture motor vehicles. Its product is confined to complete motors and automobile accessories, but the tricycle in the illustration plays an important part in the production of these. Not only are new motors attached to it for practical tests but the machine has proven itself useful in demonstrating to probable customers the efficiency and practicability of the Crest motors. It is geared to fifteen miles and upward per hour and has no speed

testing remains of value to the industry.

If a new motor needs slight doctoring the best place to doctor it is in the factory, and if the case of each motor made is diagnosed with the aid of a testing automobile which will furnish a counterpart of actual hard usage, doctor bills will be cheap indeed compared with those which are liable to emanate from improper treatment by motor buyers whose knowledge of motor manipulation is limited.

A good problem to be solved by the motor maker is that of constructing a practical automobile to which a motor can be attached in working position with an extremely low minimum of effort. The utility of such a machine is unquestionable.

TRADE IN THE BUCKEYE STATE

Cleveland, August 13.—A number of the material manufacturers of this city that have been prominent in the manufacture of cycle material are now actively engaged in furnishing material for automobile industry and almost without exception it seems to be the opinion that the new line is rapidly developing into an industry that will eclipse and in a measure take the place of the old.

An official of the Shelby Steel Tube Co. stated that the actual demand experienced for tubing adaptable for building automobile frames, steering handles and running gears is beyond all expectations for such an early stage in the business. The demand is not confined to one section of the country, but it seems that the wave of interest awakened has been general. Several concerns have started in the southern states, while the extreme west contains a number. Orders are small and there is a wide range of ideas as the different diameters and gauges of tubing adaptable for the different work, rendering prompt deliveries difficult and prices somewhat higher than they would ordinarily be, but the outlook is most encouraging.

The Cleveland Ball & Screw Co. reports that it is securing a very satisfactory amount of business from automobile manufacturers, while the number of inquiries desired from experimenters is simply astounding. The sizes called for range from 5-16 to $\frac{1}{2}$ inch, the latter sizes being used largely in hubs. Judging from the number of calls for balls for use in hubs, it seems evident that the majority of manufacturers are producing their own hubs.

The Standard Welding Co. is rapidly getting into shape to furnish seamless steel rims and is receiving a large number of inquiries for these goods. The same trouble is being experienced that is found in other lines of material; a lack of standard, making it necessary to be in a position to furnish rims of all

sizes and shapes. The Standard company is rapidly assuming an important position in the production of seamless boilers for steam vehicles. These are made in pressed sections and welded together. The use of a high quality of steel makes possible a boiler capable of withstanding an enormous pressure. A large contract for these boilers has been entered into with a prominent eastern manufacturer of steam vehicles. A report of a test made on the first lot delivered was received by the Standard company a few days ago. The tubes leading from the boilers were flanged and riveted in with one-inch rivets, thus making the lapped section double the thickness of the other portions. The specifications called for a bursting strain of 1,000 pounds per square inch, but the purchaser reported that tests made showed the boilers capable of fully double that pressure. In nearly every instance where a boiler burst, it was found that the rivets and flanges had been blown out and that the body of the boiler was uninjured. In one or two instances the boiler was expanded into practically a sphere before the rivets let go. The company is inclined to believe that the new boiler is stronger than the wire wound varieties now being used by several makers. The Standard company is also figuring on a number of different kinds of frame construction work where it is claimed its electric welding process will work economy and add to the strength of construction.

The Franz Body Mfg. Co. of Akron which is already an important factor in the industry though the production of vehicle bodies has found its business so increased by reason of the new demand, that it has practically decided to remove its New Berlin factory to Akron and erect a large addition to its plant in the latter city. A considerable amount of new machinery is to be added at once. The annual meeting of the company was held last Wednesday, when the following of-

ficers were elected: C. A. Kolp, president; A. F. Nees, vice-president; J. T. Diehm, treasurer; F. X. Franz, secretary and general manager; P. E. Ebrenz, superintendent. Directors: J. T. Diehm, F. X. Franz, C. A. Kolp, A. F. Nees and J. W. Walser.

Frank Lampkin of Norwalk has been made agent in this section for the Mobile steam vehicle. He was in the city a short time ago endeavoring to interest local people in the formation of a company to handle that vehicle. William E. Metzger of Detroit, agent in that city for the Mobile, was in Cleveland a few days ago and went east to meet George Collier, the well known Cleveland dealer, and together they went to the Mobile company's headquarters at Tarrytown, N. Y. It is reported that if satisfactory arrangements can be made the gentlemen will be interested in a selling company for this section.

The Eastman Automobile Co. of this city is considering an offer it made by a prominent Michigan carriage manufacturing concern for the consolidation of the two interests in the plant of the latter.

Advertising Manager Shanks of the Winton Motor Carriage Co. was somewhat amused at the item which appeared in several of the trade papers recently, to the effect that his company is in a position to make deliveries within thirty days from receipt of order. He stated that as a matter of fact the company had been making deliveries within that time for several months and that the recent additions to the company's facilities now make it possible to guarantee shipments within ten days from the receipt of order, making practically immediate delivery. For a long time this has been the aim of the Winton people and they have kept on increasing facilities until this could be accomplished.

Speedy cross country runs with Win-

ton vehicles are getting to be so common that they are now hardly noticed by the company's officials. Last week Frank Lowe of Steubenville, Ohio, was in the city and purchased a Winton, learning to handle it the same day. The next morning he left for home as fast as his machine could carry him, reaching Steubenville, 125 miles from Cleveland, before dark. His actual running time was eight hours. Last Sunday Joseph Weidig of this city started from Alorisburg, O., in his Winton and covered the eighty-one miles to Cleveland in six hours, the run being made by moonlight, over a very hilly country.

Davis, Hunt & Collister, for many years agents in Cleveland for the Columbia wheel, will probably be the first concern in the city to show the motor cycle. They have taken the agency for the Waltham and will show samples in the near future.

The law governing the shipment of gasoline in any form on steamboats is being strictly enforced in this section. Last week Mr. Murry of Toledo purchased a gasoline vehicle in this city and undertook to ship it by boat to his home. He started to run it onto the steamer but was forced to empty out every drop of gasoline in his reservoir—less than two quarts—before the boat officials would allow it on board. It seems that Section 4,472 of the revised statute as passed by congress, prohibits the carriage of naphtha, benzine, etc., under any circumstances, either as freight or as stores on any passenger steamer. The matter has been called to the attention of the Cleveland Automobile Club and it is proposed to investigate and see if some arrangement can not be made to circumvent this ruling, which is bound to work a hardship upon owners of automobiles, especially where it is necessary to use a ferry steamer.

WEEKLY PATENT OFFICE BUDGET

SIX MECHANICAL CONTRIVANCES OF VARYING MERIT AND ORIGINALITY AND ONE MOTOR-VEHICLE BODY DESIGN—MUCH VARIETY IN THE SUBJECTS OF THE INVENTIONS

The half dozen motor vehicle patents issued last week are interesting on account of variety. One relates to means for preventing a gasoline fuel tank from blowing automobile and chauffeur into the next world; one presents a new method of four-wheel drive combined with means for steering by manipulation of individual

five cents each. Persons sending for patents should address their letters "Commissioner of Patents, Washington, D. C.," and should enclose five cents for each copy of every patent desired, and should state the numbers and dates of the patents. Each patent described in *The Motor Age* is preceded by its number and

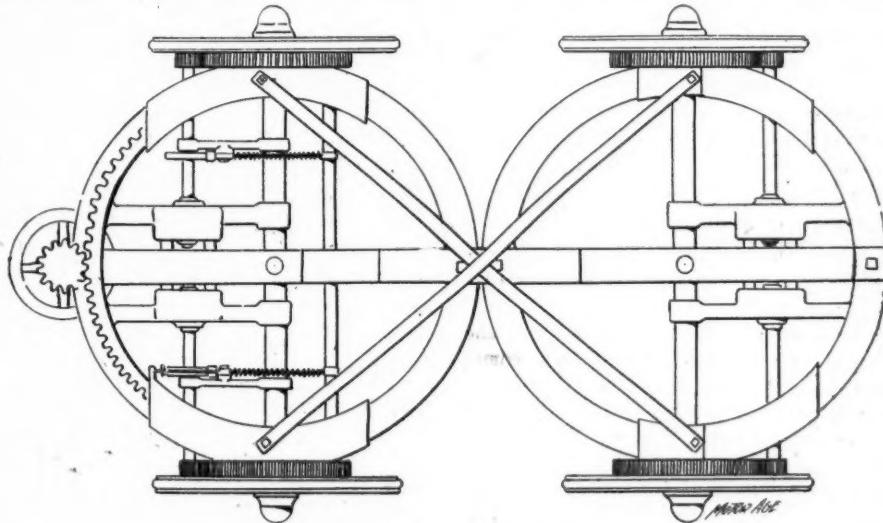


FIG. 1.—DOUGINE'S MOTOR-VEHICLE.

motors; a third has for its object the provision of a simple motor supporting frame allowing independent lateral movement of front and rear axles; another comprises a steering mechanism which suppositiously renders the guiding of a vehicle more than ordinarily steady; one has reference to means for operating a fifth wheel steering device, while the last is for a method of securing rubber tires to rims. Added to the above is a design patent for an automobile body, the design being that of the two seated Locomobile recently introduced.

The complete specifications, claims and drawings of any patents will be furnished by the patent office at Washington for

date. The date of any patent described in earlier issues, in which dates were not given, can be ascertained by deducting nine days from the date of the paper in which it was described.

DOUGINE'S RUNNING GEAR

Letters patent No. 655,329, dated August 7, 1900, to James T. Dougine, Chicago; steering, driving transmission and braking means. Four claims allowed.

The accompanying illustrations show views of a vehicle according to this invention, Fig 1, being the underside of the vehicle with all parts in normal position and Fig. 2 showing the vehicle with

wheels in position for negotiating a short turn. The vehicle is a rather novel form of effecting a four-wheel drive and steering system.

The body of the vehicle is mounted on two large truck rings secured to each other at their points of contact by a king bolt which allows one to turn vertically with relation to the other in case of unequal roadway.

Each pair of traction wheels is mounted on a stationary axle supported by a pair of segments of rings of equal diameter which are adapted to slide around the truck ring, each being supported by clips

shafts for the four distinct electric motors used to drive the vehicle, each traction wheel being supplied with a motor. Spur pinions on the ends of the armature shafts engage spur gears attached to the respective wheels and so drive the latter directly. The motors are suspended from the stationary wheel shafts.

A rheostat may be included in each separate circuit supplying the motors and by this means a varying current may be supplied to the respective motors, and a general rheostat may be employed for controlling the entire current supplied to the motors, all being contained in one

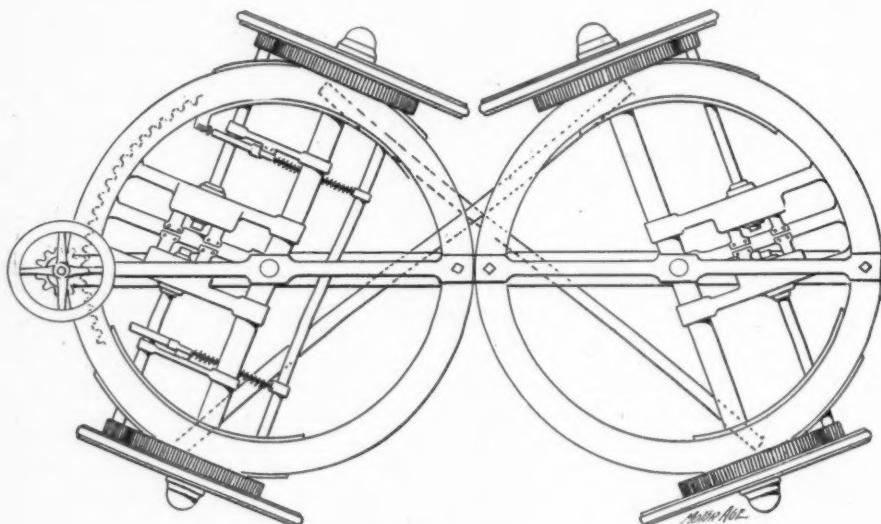


FIG. 2—DOUGINE'S MOTOR-VEHICLE.

which engage the lower flange of the stationary ring. The two segmental rings on the forward truck are retained in their substantially diametrical positions by means of spur gear teeth meshing a pinion on the lower extremity of the steering wheel post or shaft.

The ring segments which carry the rear traction wheels are compelled to act in unison with the forward pair by means of two cross bars connecting both pair and whose action is obvious. The inventor also specifies as a substitute for the cross bars a system of spur gear segments interlocking the two pairs of supporting segments.

The sliding segments carry armature

common circuit, either parallel or in series.

By the manipulation of the respective rheostats the energy supplied to the motors may be individually varied to retard the rotation of certain of the wheels and accelerate that of the others to accomplish the steering of the vehicle, the exact operation of the motors being determined by the exigencies of the occasion. The steering may be assisted or entirely accomplished by the steering wheel connecting with the forward truck as described above.

The patent also includes a braking device comprising braking shoes which operate simultaneously against the inner

peripheries of the driven spur gears on the forward traction wheels and upon friction disks on the armature shafts.

REENSTIERNAS STEERING DEVICE

Letters patent No. 655,660, dated August 7, 1900, to Gustaf L. Reenstierna, Winchester, Mass.; mechanism for controlling action of steering wheels. One claim allowed.

One object of this invention is to guide the steering wheels so that they will tend to remain steadily in position for straight forward running without constant care and exercise of caution on the part of the driver of the vehicle, and another is to provide means whereby the wheels in swinging will do so without the sliding tendency which is spoken of by this inventor as being concomitant to the action of wheels which swing in planes exactly parallel to each other.

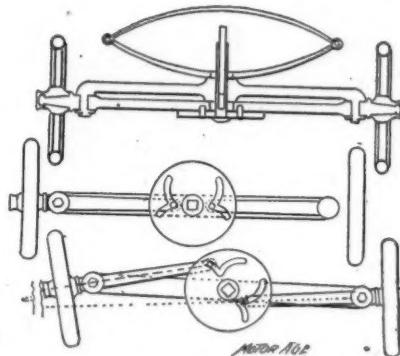
The forward spring of the vehicle body is mounted directly upon a straight rigid cross bar each of whose outer extremities is bent downward to form, or is provided with, a vertical bolt or axle which receives a bearing boss formed in horizontal axle bar to the outer end of which is attached the wheel in any suitable fashion. The inner portion of the hinged axle bar extends almost to the center pin of the stationary cross bar and is supported between the lower side of the hub of the said cross bar and the upper face of a horizontal disk attached rigidly to the lower extremity of the vertical center pin.

The pin itself is telescopic by means of spline connection between upper and lower sections and carries the steering lever. The steering pin disk is formed with two double wing cam slots, each of which engages a downwardly projecting pin on the end of the respective wheel axle bar.

When the wheels are in position for straight-ahead running the pins rest in the points or apices of their respective cam slots and are thus locked sufficiently to steady the axle bars and prevent the wheels from being accidentally swung to change the direction of the vehicle. The inventor further draws the point that on account of the fact that the wheels are

secured as close as possible to the vertical hinge bearings of the axle bars and that the inner portions of the latter are considerably longer, this difference in leverage will also tend to prevent constant slight swinging of the wheels and consequent annoying vibration of the steering handle.

The action of the axle bars is guided by the cam slots so that the wheel which is on the inner side of a turn being made by the vehicle will be swung a greater distance than the other that both may run substantially tangential to radii struck from a common center, as shown



Steering Mechanism a la Reenstierna.

by dotted lines in the accompanying illustration. The inventor does not specify the exact means employed to determine the best curvature of the cam slots. It is probable that unless the cam disk were made extremely large, short turning of the vehicle would be impossible.

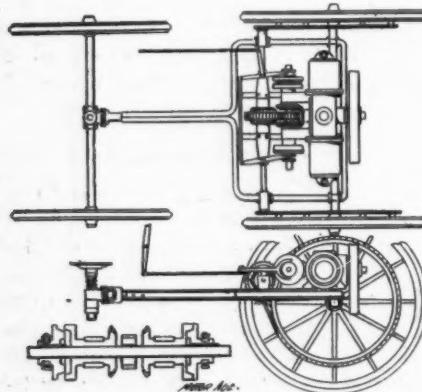
SWIVEL FRAME AND DRIVING GEAR

Letters patent No. 655,670, dated August 7, 1900, to Leonard E. Brookes, Chicago; motor supporting frame and driving gear. Three claims allowed.

Like many other motor vehicle patents which are being issued, this contains really two separate and distinct inventions either one of which might be practically applied without relation to the other. It is characteristic of a new industry that patents for several years frequently combine ideas that further along in the game would be divided into two or more dis-

tinct applications for patent rights. In this instance Mr. Brookes obtains a joint patent for a motor supporting frame and tie between front and rear axles whereby the two pairs of wheels are free to turn independently of each other in a vertical plane and for a method for transmitting either forward or backward driving motion to the traction wheels.

The running gear frame comprises a substantially rectangular frame of one piece of I bar iron or steel with a forward central extension consisting of the two end portions of the bar running longitudinally adjacent to the center of the front axle. Here a horizontal swivel connects them to the spring axle post



Brookes' Running Gear and Frame.

upon which is mounted the fifth wheel used for steering. The front axle is thus free to tip laterally when traveling over obstructions or rough roads. The motor and driving mechanism are supported by the rear rectangular portion of the frame, being mounted on longitudinal bars of I iron running from the front to rear reaches of the rectangle. So much for the first invention embodied in the patent.

The motor used in connection with the transmission device forming the second part of the patent may be of any desired kind and is situated crosswise on the vehicle frame so that its driving shaft will be centrally longitudinal. On the forward end of the shaft is mounted a bevel gear adapted to mesh with two

other bevel gears, one on each side.

Each of these latter gears is secured to a loose sleeve on whose outer end is one member of an annular friction clutch the other member of which is mounted on a sliding hub splined to the cross shaft. Link connections between the sliding clutches and the controlling rod operate to throw one clutch out of engagement as the other is brought into engagement and hence when one clutch is engaged the cross shaft will be driven in one direction and when the other is engaged, in the reverse direction. Centrally on the shaft is located a spur pinion which meshes with the spur gear enclosing the differential on the counter shaft from which either sprocket and chain or bevel gear transmission may be employed to drive the traction wheels.

Mr. Brookes states that though not shown in this patent specification on account of an application for a separate patent for the device, there is arranged in connection with the driving mechanism a band brake which is operated by the lever that controls the reversing clutches, and that whenever the controlling lever is brought to its central position (at which point neither drive clutch is in engagement) the brake is applied. By this means the vehicle and the driving mechanism are quickly brought to a dead stop before the reverse clutch from that previously in engagement is pushed into driving position and all danger of undue racking of the various gears and pinions consequently avoided.

OTHER PATENTS OF THE WEEK

Letters patent No. 655,661, dated August 7, 1900, to Gustaf L. Reenstierna, Winchester, Mass.; fuel reservoir for gasoline engines. Four claims allowed.

Letters patent No. 655,256, dated August 7, 1900, to John G. MacPherson, Philadelphia; fifth wheel for vehicles, operated by steering lever through bevel and spur gear connections. Two claims allowed.

Letters patent No. 655,191, dated August 7, 1900, to Richard A. Brine, Revere, Mass.; means for securing solid rubber tires to vehicle wheels. Four claims allowed.

NEWS OF THE MOTOR INDUSTRY

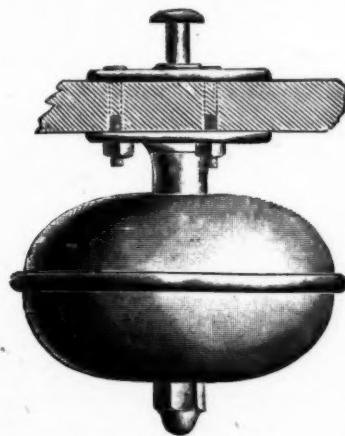
MOSSBERG AUTOMOBILE BELLS

The Frank Mossberg Co. of Attleboro, Mass., the well known makers of bells for various purposes, as well as wrenches, sheet metal novelties, light machinery and special tools, have added a line of bells suitable for all classes of vehicles, from the light bike buggy up to the trolley car.

In the design and construction of the bells, however—write the company—particular attention has been given to automobile requirements. Automobile bells are made in three sizes, viz., 5-inch, 3½-inch and 2½-inch gongs. Each size is

mechanism is new, simple and durable. The bells are rung by a slight pressure of the foot. The "electric" chime produces a repetition of strokes, similar in effect to the continuous ringing of an electric gong. The double stroke bell produces the peculiar effect known to the users of the Mossberg bicycle bell as the "Cucoo" chime. This bell should prove a general favorite on small automobiles and carriages.

The company state that they are now at work on a contract to supply more than 200 bells a week to two of the leading automobile manufacturers, the contracts having been secured in close competition with other bell makers.



Mossberg Automobile Bell.

made in two styles, a double stroke chime and an "electric" chime. The distinguishing characteristics of these bells, according to the company, are their resonancy and brilliancy of tone and the simplicity and reliability of their mechanical action.

The accompanying illustration shows a five-inch bell, with its method of attachment to a vehicle. The striking mechanism is operated through the center of the bell by a plunger which is so constructed that it will not rattle and which is locked in its position so that it can not fall out nor be removed by the ubiquitous, mischievous small boy, as is the case with the ordinary bell. The

RECENT INCORPORATIONS

The following companies have been recently incorporated:

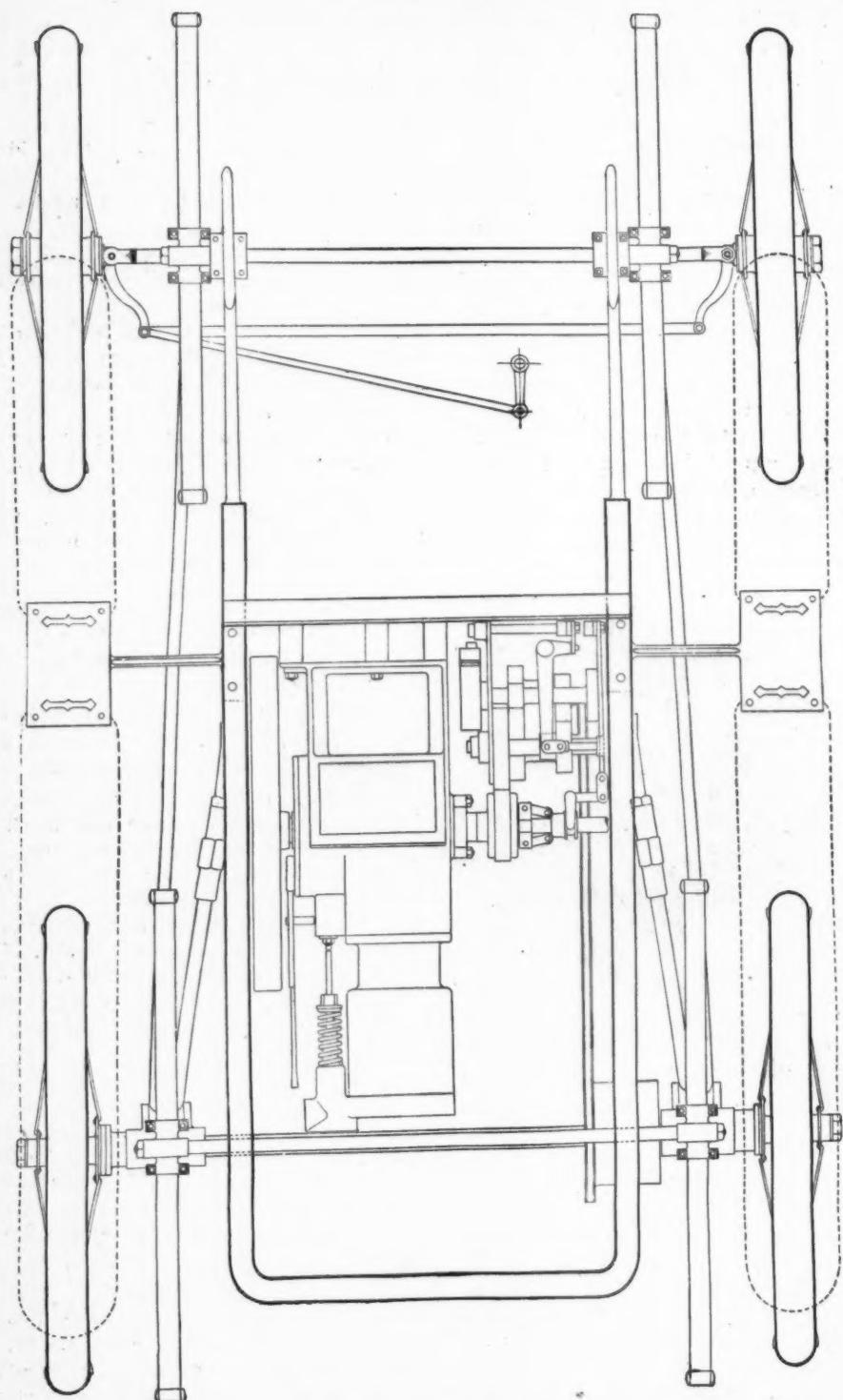
Detroit Motor Works, Detroit, Mich., capital stock, \$10,000.

The Remington Automobile & Motor Co. of Ilion, N. Y., under the laws of New Jersey; authorized capital stock, \$250,000; officers, Philo E. Remington, president; S. C. Burch, treasurer, and P. A. Stubblebein, secretary.

Automobile Rapid Delivery Co., Detroit, Mich.; capital stock, \$25,000, of which \$6,000 has been subscribed; officers, John W. Goodson, president, and Hamilton O. Davis, general manager.

CHARLESTON EXPOSITION

Automobile manufacturers will have no lack of opportunity to display their productions at expositions in American cities within the next year or two. The Buffalo and St. Louis expositions are in prospect and have been widely heralded. Attention is also called to the exposition to be held at Charleston, S. C., from December 1, 1901, to May 1, 1902, which will be given under the name of the Interstate and West Indian Exposition. The promoters of this show say



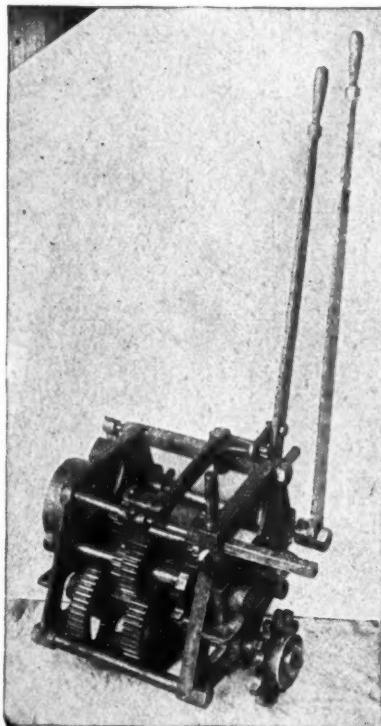
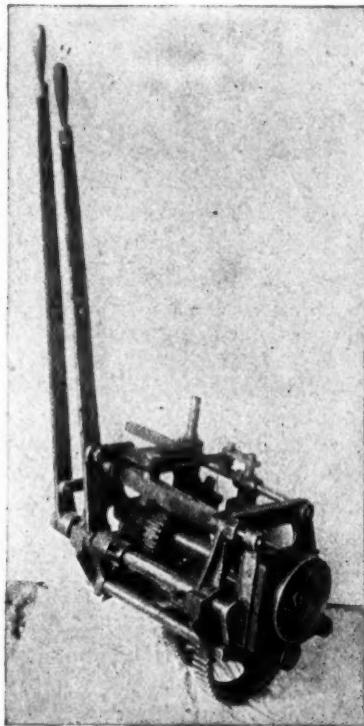
PLAN OF ST. LOUIS AUTOMOBILE & SUPPLY CO.'S COMPLETE RUNNING GEAR.

that it offers an exceptional opportunity for automobile manufacturers to place their various vehicles before the people of the south. It is hoped to have every department of the automobile industry represented.

READY FOR THE BODY

The St. Louis Automobile & Supply Co. of St. Louis, Mo., are rapidly push-

body, paint, and upholster. This includes a complete running gear with wood wheels, 1½-inch solid rubber tires, angle iron frame mounted on loops, transmission device and engine mounted. The engine is a single cylinder 5x6 improved gasoline motor, with shifting igniter and made of the best material. A friction clutch (the only one used) is placed on the engine shaft. Between the



TWO VIEWS OF ST. LOUIS AUTOMOBILE & SUPPLY CO.'S SPEED CHANGING GEAR.

ing their way to the front in the automobile business. This company was unquestionably the first supply company of this kind to enter the motor-vehicle field. The company has just issued a catalogue containing about fifty illustrations of their product and supplies, which is probably the most complete catalogue issued in this class of industry. They will mail this instructive pamphlet to any address upon receipt of a two-cent stamp.

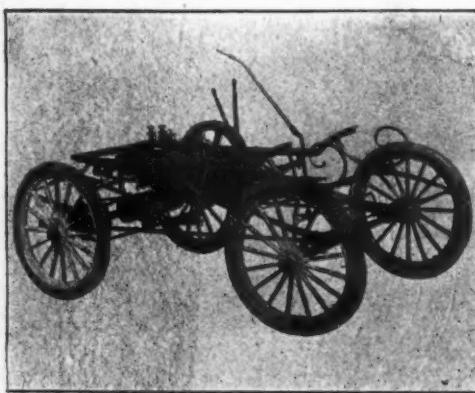
The first illustration shows their complete outfit No. 1, ready to mount the

two friction plates a speed gear cut out of solid steel meshes into a speed gear made of rawhide on the transmission device.

The transmission device, as illustrated, gives two speeds forward and one reverse; the other speeds, which are many, are gained by pressing a foot lever controlling the mixture of oil and air. One of the two levers shown, the larger one, throws off and on the friction, or, in other words, throws off and on the power of the engine. By pressing this lever further down, the block brake is

thrown on. The other lever shifts the gears. This shifting lever cannot be used until the power of the engine or friction is thrown off. The transmission is positive in action, and being made up of gears cut from solid steel and side plates of phosphor bronze, it is almost impossible for it to wear out or break.

The third illustration shows a gear just put out, with pneumatic tires instead of solid tires, and with their double-cylinder seven-horsepower engine. This is suitable for a trap, delivery wagon, etc., and is called outfit No. 2. Outfit No. 1 first described is suitable for a



View of St. Louis Automobile & Supply Co.'s Complete Running Gear.

runabout or light trap. The price of the No. 1, complete, is \$495; the No. 2, complete, \$785.

The company will change wheel base, track, diameter of wheels, tires, etc., to suit purchaser.

GOOD RUN ON MOTORETTES

New York, Aug. 13.—Two good records were made on De Dion motorette quadricycles last week. Messrs. Hyde and Day, of the Automobile Patents Exploitation Co., rode to Bridgeport, Conn., a distance of sixty miles, in 4 hours 5 minutes, including all stops. Mr. Field accomplished the 120-mile journey from Brooklyn to Shelter Island in a day.

The company on Sept. 1 will establish a salesroom at the Sixty-sixth Street storage station. It is expected that de-

liveries will be begun about the first of October.

Mr. Field told a Motor Age man today that the De Dion motorettes would take part in every show, race meet, and contest promoted north, south east and west.

NEW YORK MOTOR VEHICLE CO.

New York, Aug. 13.—"The stories that have been printed about our company soon to lease the old Worcester factory at Middletown, Conn., garble the facts frightfully," said Secretary Sherwood Dunn, of the New York Motor Vehicle Co., to a Motor Age man today. "We will have a meeting of our directors next week and will then give out a statement of what we have done and our plans for the future."

NEW YORK AUTOMOBILE SHOW

New York, Aug. 13.—Every foot of space for the automobile show at Madison Square Garden has been taken, including all the space in the restaurant, which has been added. In this room there will be a section set aside for an exhibition of motor vehicle racing machines.

VANDERBILT GETS A LOCOMOBILE

"Willie" K. Vanderbilt has just had added to his motor vehicle stable one of the new model Locomobiles. It was a present from his wife. He had hitherto been using one of the old model Locos.

The erection of an immense brick and iron automobile manufactory is being contemplated by the Pullen Storage Battery Co. of Camden, N. J., to be erected at that place. Architects of Philadelphia and Camden are working on the preliminary plans and final drawings will be started as soon as an architect is selected.

A. Hartleben, 19 Seilerstatte, Vienna, Austria, is the publisher of a two-volume work on "The Automobile in Theory and Practice," compiled by L. Baudry de

Saunier, in French, and translated into German by Dr. R. von Stern and Hermann A. Hofmann. The first volume deals with the motorcycle and the voiturette and the second with the large motor-vehicle.

L. J. Picha, manager of the Northwestern Cycle Co., of Minneapolis, writes to the Motor Age that he is considering the addition of supplies for automobiles to his bicycle line. He reports that several repair men in his city have assembled automobiles, purchasing parts from eastern makers.

A certified copy of the incorporation, under the laws of West Virginia, of the Union Motor Truck Co., was on Wednesday last placed on record in the Philadelphia courts.

Among the bicycle makers who are preparing to manufacture automobiles are the Trinity Mfg. Co., Hoffman Bicycle Co. and Otto Konigslow.

The Consolidated Railway Electric Lighting & Equipment Co., of Derby, Conn., reports a constantly increasing

inquiry for automobile parts, which is accepted as evidence of a rapid growth of the motor vehicle industry.

The Wittmann Co. has been incorporated at Lincoln, Neb., by J. H. Wittmann, O. Wittmann and O. J. Junge, for manufacturing and dealing in automobiles and bicycles; capital stock, \$25,000. Otto Wittman has left for the east to purchase machinery for the new company.

Although nothing definite as to the form of vehicle has been decided upon, it is reported that the Olive Wheel Co. is figuring on the manufacture of automobiles, which will be on the market some time within a year.

The Trinity Mfg. Co. of Keene, N. H., writes: "We are actively preparing for the production of steam automobiles and shall keep the motor cycle part of the business in mind."

J. G. Swindeman & Co., Toledo, O., are in the market for automobiles and are watching the growth of the industry with interest.

MOTOR RACING AND MOTOR PACING

BOSTWICK'S EXPERIENCES ABROAD

New York, Aug. 13.—Albert C. Bostwick, a prominent member and racing man of the Automobile Club of America, arrived this week from a notable trip abroad.

A Motor Age representative had a long talk with him today, at his banking office, on his experiences abroad and on foreign racing in general.

"In addition to my de Knyff racing machine, about which you newspaper men have written so much," said he, "I brought with me a Clement voiturette,

two voiturette frames, my old Winton and a tricycle."

In reply to questioning he entered more particularly into a discussion of the various vehicles of his outfit.

"I must decline to say what price I paid for the de Knyff vehicle or whether 60,000 francs, the price mentioned, is correct. This is the machine which made the world's record in the tour de France contest between Nice and Marseilles. It is a twenty-four horsepower vehicle. I have gone on it myself in practice forty-five miles an hour and since you ask me I am sure I could easily cover the fifty-

mile Long Island course, over which the American record of 2 hours and 3 minutes was made by Mr. Winton, in 1 hour and 10 minutes. The Clement voiturette weighs only 300 pounds and is a nice little thing to have to knock about in. I am going to have the two voiturette frames, which I had made after my own design, completed in America."

Mr. Bostwick was pressed closely to tell something about his tricycle.

"I had rather not speak about that now," said he, with a most significant smile.

Mr. Bostwick is an enthusiastic motor racing man and discussed the coming races at Trenton and Guttenburg with enthusiasm, so it is easy guessing that he thinks he has a trump card up his sleeve in his tricycle.

Mr. Bostwick was third on his de Knyff car in the great Paris-Perigueux contest, his only race abroad.

"This was a race of 353 kilometers," said he. "There were ninety in the race and twenty in the big class in which I rode. We were started a minute apart. I crossed the line second, but was third in the race. Levegh won and Geraud was second. I had good luck; but I punctured my tire just after crossing the line. My time for seventy-two miles was 1 hour 31 minutes, which is a trifle over forty-five miles an hour. The men ahead of me were on new cars of the same model as those ridden by de Knyff and Charron in the Bennett international race. Mr. Winton, our representative, had a fast car but ran into the side of the road and thus broke a wheel and put himself out of the running. I don't think we have a living chance of beating the Frenchmen for some years yet in the international race."

"Now, as to challenging Mr. Vanderbilt, let me say I have no such intention. If we should happen to meet in a club run or in one of the open races I should of course, be glad to try my speed against his. By the way, his vehicle is a German Daimler and not a Panhard, as has been stated in the papers."

"What car do I consider the fastest in the world? Why, the Mors car ridden by

Levegh when he beat me. The Mors people copy the Panhard models and this car was a new car gotten out ahead of the Panhards. In the Paris-Toulouse race he rode it at the rate of sixty kilometers or 37½ miles an hour. The race was 869 miles, remember, and was run in three stages.

"I notice in the club run to the Trenton fair for the \$1,000 cup, they have restricted the vehicles to American makes. This is wrong and the French and Germans will laugh at us for our fear of them. We should go against all comers and take our lickings manfully until we can build machines to beat theirs. I don't think, though, that our club will accept the cup with these restrictions. I see that the proposed endurance test is also to be limited to American makes. For the same reason this should not be. I think, too, the whole scheme of the proposed test, which will be based on stops made and ability to climb hills, is all wrong. The test should be for speed and endurance combined, a certain number of points being allowed for each. As for hill climbing all one has to do is to put on power and low gear enough and he can climb any hill.

"M. de Knyff was very courteous to me and complimented me on my handling of his machine in the race. You know M. de Knyff is the superintendent of the Panhard works. Messrs. Charron and Girardot were also very kind to me. They have a magnificent salesroom on the Avenue de la Grande Armee, the 'automobile row' of Paris. They have an exchange, where by paying a bonus you can, for instance, get a Panhard at once, which otherwise you would have to wait eighteen months to get from the factory.

"Well, good-bye, I've got to get away now, as I have a new yacht to inspect."

And so the interview with the young multi-millionaire horse, yacht, and motor vehicle enthusiast ended.



BERTRAM AND HIS PACING TRICYCLE

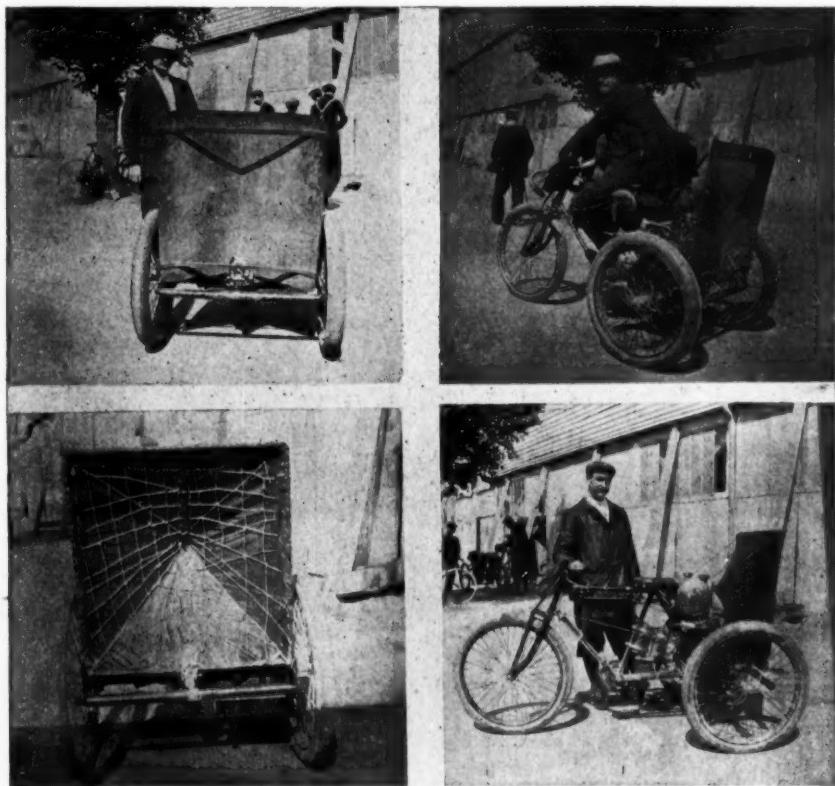
The photographs reproduced herewith were taken by Arthur W. Ross, the team

mate of Harry Elkes abroad. This is the machine behind which the world's records were made, notably the world's record of Taylor, which Elkes would have beaten at Berkeley Oval last autumn but for an accident in the last half-minute of the trial. Elkes rode behind a tandem.

Ross told your representative that the advantage behind this tricycle was enor-

the arrangement of wind shields for record trials. Readers of this paper can now appreciate the wonderful records of our own men, when they realize the great disadvantages of following tandems as compared with such aids to speed and draft as are furnished by such machines as Mr. Betram's, pictured here-with.

M. Betram and his tricycles are under



BERTRAM AND HIS PACING TRICYCLE.

mous. For instance, he himself rode fifteen miles at a 1:41 clip behind it with ease, when out of training and not at all in condition. This advantage is largely increased by the steersman, the most skilled driver of motor tricycles in Europe. M. Betram is a giant, being six feet four inches in height. His own added resistance and "draft" are far from incon siderable. The photographs show

the control of the Clement-Gladiator-Phoebus combination, whose riders are Bauge and Bonhours. Elkes, Taylor Ross and the other outside pace followers, in self-defense, have agreed among themselves, under penalty of 5,000 francs forfeit, not to ride matches behind tricycle pace.

Arthur W. Ross sailed on Thursday on La Tourraine to compete in the Bal

d'Or twenty-four-hour race at the new exposition track in September.

NELSON LOWERS RECORDS

Philadelphia, Aug. 11.—World records fell like hail today at one-third-mile at Woodside Park track where Johnnie Nelson gained his eleventh straight victory and defeated McEachern for the third time. Every mark from three to thirty miles inclusive went by the board by cuts of a substantial nature, excepting the twenty-five. Young Nelson gained all the marks, lowering his own most of the way but regaining many which Michael and McFarland lowered in their battle of July 4. Nelson rode back of a 2½-horse-power motor of the regular variety, while McEachern followed the Miller and Judge 3½ horsepower, waterjacketed, converted triplet. This machine, capable of a mile in 1:15, was a surprise to Nelson, who

considered that his time had come to accept defeat. He aimed, however, to crack McEachern at the start, but was saved the trouble when the saddle on the Canadian's racing machine broke in the second mile. While Archie changed wheels Nelson gained a half mile. With his superior pace McEachern closed the half lap but more he could not gain, although the men passed and repassed each other on straight and bank. It was a pretty race for miles as they fought round each other. The Canadian finally gave up the attempt to regain the lost third of a mile and Nelson then took a slower speed. The day was insufferably hot, 100 in the shade and about 120 in the sun, yet for twelve miles after the first, Nelson averaged 1:32 and for sixteen miles he averaged 1:33. He had intended going for the hour record but the slow speed toward the close of the race and the intense heat made it impracticable and he saved the effort for later in the year.

FROM THE FOUR WINDS

WAR ON AUTOS IN JERSEY

A determined effort is being made in Camden, N. J., County to exclude automobiles from the Camden County roads and thereby prevent them from using the Atlantic City stone and gravel roads, says the Philadelphia Telegraph.

The attack upon this class of vehicles was really begun last winter, when Assemblyman Gill, of Camden County, caused a bill to be prepared excluding them from all state roads. Considerable pressure was brought to bear upon Mr. Gill, and the bill was not introduced.

Since that time, and since summer travel began the autos have been using the stone and gravel road from Camden to Atlantic City as a favorite thoroughfare. They have used it at all hours and run at the highest rates of speed, and in face of numerous protests on the part of

residents, until at last a vigorous attack was made upon the machines at this morning's meeting of the Camden County Board of Chosen Freeholders.

The board had ordered plans prepared for several new roads, and the Pennsylvania railroad had requested and was granted permission to abolish grade crossings at much-used points on the Atlantic City Road, when Mr. Gill, who, besides being an Assemblyman, is also the chairman of the stone road committee of the board of freeholders, arose and called attention to the outrageous conduct, as he called it, of the automobileists. He declared that their presence on the Camden County roads was endangering the safety of other travelers; that they were absolutely regardless of the rights of others; and that they travelled at a rate of speed that is entirely inconsistent either with the pleasure or safety

of others who had more right to the roads than they.

Mr. Gill also called attention of the board to the noisy character of some of the autos.

"They resemble steam engines more than they do vehicles," said he. "The Pennsylvania Railroad would have just as much right to run engines along the road as these people do to run steam autos."

Mr. Wood seconded Mr. Gill's motion, and the solicitor was directed to report the best method of ruling the autos off the roads or of regulating the speed to ten miles an hour.

CHICAGO CLUB'S RUN

Last Saturday the Chicago Automobile Club took its first run, starting from the Auditorium hotel. There were sixteen vehicles in line and the number would undoubtedly have been greater except for a thunder shower which occurred just before the hour for the run. As it was, several joined the run at different places along the route.

The trip took the party north on Michigan boulevard, through Lincoln Park and the Lake Shore Drive, to the Bismarck Garden, where a brief stop was made. Then the party returned to the city and went south over the South Park system of parks and boulevards to the Eidelberg Garden, where supper was served. There were no accidents of any kind to mar the pleasure of the trip, although there were a few brief delays to some of the newer chauffeurs, owing to their unfamiliarity with their machines, but these were only momentary.

The following is the list of those who started on the run:

A. J. Eddy and F. C. Donald; R. B. Leffingwell, Andrew R. Sheriff, Dr. M. B. Pine and M. R. Bloom; F. W. Gresham, F. T. Jones and W. H. Tiernan; L. F. Wright and G. Allen Courtright; L. L. Bligh and E. F. Brown; J. E. Scully and W. C. Graves; W. W. and L. D. Shepard; J. B. Burdett and E. L. Dunn; H. M. and F. M. Brinkerhoff; Dr. D. Cottrell and William R. Ray; C. T. Jeffery and Dr. Grimm; O. J. Friedman and B. Schlesin-

ger; W. M. Robinon and W. W. Hazard; W. W. Robinson and R. C. Burroughs; J. S. M'Kenney and B. M. Young, and J. R. Hall.

The club is the outgrowth of the Western Automobile Association, which name has been abandoned. The following are the officers of the new club:

A. J. Eddy, president; J. Ogden Armour, first vice president; Samuel Inssull, second vice president; F. C. Donald, third vice president; C. T. Jeffery, secretary; Dr. D. Cottrell, treasurer.



PHILADELPHIA CLUB RUN

Philadelphia, Aug. 13.—The second seashore run of the new local club of automobileists—which, by the way, was chartered last Monday as the Pennsylvania Automobile Club, with Dr. F. L. Sweany, president; Julian Haugwitz, vice president; Henry J. Johnson, secretary; Charles E. Wright, treasurer, and Dr. S. Leon Gans, captain—was successfully brought off over the Atlantic City course on Saturday afternoon last. Twelve vehicles participated, and all reached the Waldorf-Astoria at the appointed time, 6:30 p. m., but those of "Billy" Taxis, the one-time circuit chaser, and President Sweany. The former's vehicle must have dropped into a hole, for nobody saw it or its occupants after the start. The president's machine—which is the first automobile that put in an appearance in this city—was temporarily put out of commission by a broken part, Dr. Sweany and his wife taking the train at Hammonton, the half-way point. The return trip, which was begun yesterday afternoon and concluded at 8:30 o'clock at the headquarters, 138 North Broad Street, was uneventful, all the machines coming through without accident.

Captain Gans informs your correspondent that these outings are pleasure trips pure and simple, attempts at excessive speed being officially frowned upon.



FOOLHARDY ATTEMPT BALKE

Philadelphia, Aug. 13.—On Saturday afternoon last two Philadelphia auto-

mobilists, C. Russell Hinchman and W. H. Fry Bettie, undertook the foolhardy feat of driving their Locomobile over the mile-long railroad bridge crossing Townsend's Inlet into Sea Isle City. Fortunately for them a plug inserted in one of the tires earlier in the day blew out after the vehicle had bumped along but a few yards, and the callow notoriety-seekers were compelled to return. There's a Providence that watches over fools and drunken men.

PERSIA'S SHAH BUYS AUTOS

Paris, Aug. 6.—Paris has been agog over the eccentricities of the Shah of Persia for the past few days. He has behaved himself very much like a chld' who had been given a large sum of money and turned loose in a toy shop.

The very first thing that he did when he reached the palace that has been reserved for his entertainment was to send his attendant bandmaster, who is also a general in the Persian army, to summon M. Serpollet, the president of the Moto Club de France, and also a manufacturer of automobiles.

He waited on the palace terrace for the automobilist to put in an appearance, and, when he came in sight, the Shah greeted him with a cheery "Bon jour" in a highly democratic manner. Here, however, the Shah's French gave out, and he was compelled to have recourse to the services of interpreters.

M. Serpollet came in a motor-vehicle. The Shah at once demanded an explanation of the various parts of the vehicle, and seemed much pleased.

He said, through an interpreter, that he had been told that he would be much disappointed when he saw an automobile, but that the contrary was the case. Then he asked the manufacturer to show off the paces of the vehicle. M. Serpollet proceeded to do so, while the Shah stood delightedly by, commanding—through an interpreter, of course—the chauffeur to go faster or slower, or to the right or left, to stop, start, and turn completely around. Then he asked to be taken for a ride and was accommodated. Through the streets the eastern

potentate and his conductor dashed at a speed that put the laws of Paris to naught, the Parisian delighted at the immunity from arrest that the presence of the royal passenger insured.

When they had returned from their spin the Shah wanted to know if he could purchase the vehicle in which they had been riding, instantly or sooner. When M. Serpollet told him that the vehicle was already sold, and that it would be impossible to secure on at once, he expressed the greatest dissatisfaction, and told M. Serpollet to communicate with the purchaser of the vehicle and see if he would not part with it.

A big program of automobile track races has been scheduled for Ostend on August 30. Nearly \$4,000 in prizes will be awarded.

WASHINGTON AUTO CAB SERVICE

Washington, D. C., Aug. 11.—The capital of the nation, with its many miles of asphalt pavement and good suburban roads leading out from the city in every direction, offers an inviting field for the exploitation of automobiles, and it is a gratifying sign of the times that the last five or six months have witnessed a marked increase in Washington in the popularity and number of this type of vehicle, both for business and pleasure purposes. This has been due, to a considerable extent, to the growth of the service of the Washington Electric Vehicle & Transportation Co. This corporation has been operating a cab service here since the beginning of the current year and its business has developed to a degree far beyond the expectations of its officers.

The livery service is complete in every detail and it is the constant aim of the management to make it as perfect as the most luxurious and comfortable vehicles, and competent and careful operators will permit. The plant is located in a building formerly used as a panorama on Fifteenth Street just south of Pennsylvania ave. The sum of \$15,000 was expended in transforming it into one of the finest and most conveniently equipped electric cab stations in the country.

The entire plant is located on the

PERFECTLY NOISELESS



This omnibus is equipped with two $4\frac{1}{2}$ H. P. Motors which will stand an overload of 100 per cent. Battery capacity, 19 K. W.

We also build DELIVERY WAGONS, STANHOPES and BRAKES and guarantee them—something no other company does.

All our vehicles have *Flexible Running Gears and Spring Hung Motors*, are built with the least possible number of parts and have little to get out of order. Every precaution has been taken to prevent the burning out of motors or the injury of batteries from carelessness.

—THEY ARE AS NEAR FOOL PROOF AS POSSIBLE—

HEWITT-LINDSTROM MOTOR Co.

75 North Clinton St., CHICAGO, U. S. A.

JOHN HEWITT, President and Treasurer.

CHARLES A. LINDSTROM, Secretary and Gen'l Manager

THE MOTOR AGE

ground floor. The structure is circular in form and a driveway leads up to the entrance on Fifteenth Street, where are located the offices and waiting rooms. The cab room is in the center of the building. It is an extremely large room with a lofty ceiling, and here are kept the eighty-five vehicles which the company now operates. The number is to be increased to 130 when the season opens, which will be about November 1. In the center of the cab room is a loading stand, where the cabs are tested immediately after a run. By means of this loading stand the exhausted battery is removed from the vehicle and a freshly charged battery substituted, requiring only a few minutes.

At the rear of the cab room is the battery room. It is of ample dimensions, dry and well lighted. Here are kept the batteries and the electrical apparatus, switchboards, etc. The electrical equipment is of the finest and the most modern make. Immediately to the left of the battery room is located the repair shop, which has a full equipment of power machinery and enables the vehicles to be repaired at the shortest notice. The current for charging the motors is supplied by a local power company and in order to increase the pressure a booster and crusher is employed.

When the service was first established the various vehicles were equipped with pneumatic tires. Since then it has been discovered that better results accrue from the use of solid tires, and these are being put on all the vehicles.

Very careful attention is paid to the employment of men for drivers. They are obliged to furnish the best of references, and are selected with a view of securing intelligent men of good appearance and good habits. They are obliged twice daily to undergo inspection for their appearance and their condition for work.

AUTOMOBILE CLUB ITEMS

New York, Aug. 13.—C. J. Field, chairman of the Technical committee, told a Motor Age man today, that he would call a meeting of the committee for next

week to discuss arrangements for the proposed endurance and other tests.

The new club book will be out this week. It will contain the automobile laws of all countries and our own states in addition to much additional information of value to chauffeurs.

The question of moving the club rooms from the Waldorf-Astoria to the Astor Court building is now under discussion.

COLLECTING MAIL AT WASHINGTON

The postal officials of Washington are much pleased with the work of the electric mail wagons, which are being given exhaustive tests. It is learned that big savings were effected in the collection and the delivery of mail. The manufacturers of the vehicle now being used say that there will be considerable economy in the operation of the vehicles, and if this can be demonstrated it is probable that a number of them will be rented by the local postoffice. The wagons are small affairs, enclosed at the front with glass windows, the carrier occupying a seat on a small platform in the rear. There the electric machinery is at hand and through the glass windows he sees to guide the wagon. The carrier can step off at every letter box with little loss of time.

ENLARGES HIS STABLE

Cleveland, Aug. 6.—George Weiss, the local enthusiast, whose automobile barn was recently described in this paper, has added to his "stable" of vehicles. He has just received a steam mobile and an electric rockaway, or closed carriage on the order of the brougham. The latter vehicle is the product of the Cleveland Machine Screw Co., and is the first of its pattern produced. Mr. Weiss will use it as a family carriage.

SWISS AUTOMOBILE REGULATIONS

The use of motor vehicles in Switzerland is to be regulated by new ordinances, which have lately gone into force. No motor vehicle can be put in use before being first thoroughly tested by a technical commission and declared fit for use

by such commission. Furthermore, the motorman must be regularly licensed. Thirdly, every vehicle is to be equipped with two lamps, one of which must be provided with white, the other with green glass. Lastly, every motor vehicle must be provided with a plate, distinctly bearing name and address of the owner. It is remarkable that the ordinances in question contain no clause regulating the speed to be maintained in driving.



Promoters find that in making matches it is best to bring together men of nearly

equal speed and with two motors to each man. It is exceedingly unsafe to try to run races with one motor to a man, as such contests are almost invariably unsatisfactory, as regards finish. Somehow things most always go wrong when there is one motor, and when two motors are present it is most often the case that the second team is ornamental. Yet the presence of the second motor is desirable. Too many crowds have been disappointed to permit of much more in the way of failures. The people should be satisfied and the careful promoter sees that every precaution is taken. But more money must be given when two motors are required and some promoters prefer to take the risk of disappointing the people, forgetting that it is the people who make race promoting possible.

MISCELLANEOUS

Advertisements under this head 5 cents per word, cash with order. Express orders, post office orders, or postage stamps accepted.

FOR SALE

FOR SALE—Two "Haynes Apperson" Automobile Surrises; improved and in A-1 condition. HAVANA AUTOMOBILE TRANSFER CO., 21 R R Place, Newark, N. J.

FOR SALE—DeDion Quadricycle, imported a few months ago, used but little, in good condition. Apply AUTOMOBILE PATENTS EXPLOITATION CO., 27 William St., New York.

FOR SALE—The Automobile Storage and Repair Co., 57 West 66th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some special bargains.

FOR SALE—\$350—A Buffalo gasoline motor carriage runabout; 2½-in. pneumatic tires; guaranteed perfect in every respect; will send photo and description if wanted. This is the second month it has been used; it is in operation every day. Reason for selling, want a double-seated carriage. Address W. T. DAVIDSON CO., Mayville, N. Dakota.

WANTED

WANTED—Correspondence with parties manufacturing steam boilers and engines for automobiles. Address B, care Motor Age.

FORGINGS FOR AUTOMOBILES

SNELL CYCLE FITTINGS CO.
TOLEDO, OHIO

AUTOMOBILE PUMPS

GLEASON PETERS AIR PUMP CO.
Mercer and Houston Sts. NEW YORK, U. S. A.

VARIABLE SPEED TRANSMISSION

For the
simplest and best
drive . . .

EMPIRE MOTOR WORKS
500 Washington St., Buffalo, N. Y.

Second-Hand Automobiles

Send for descriptive circular to

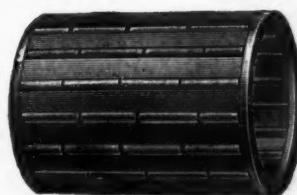
The St. Louis Automobile & Supply Co.

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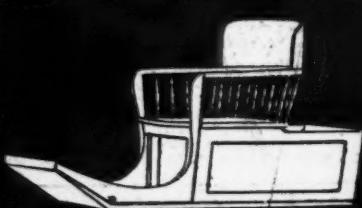
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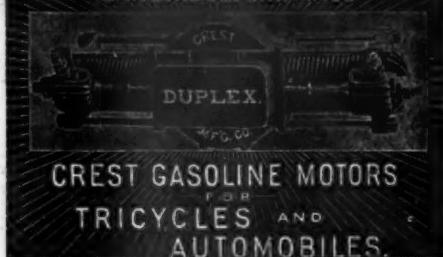
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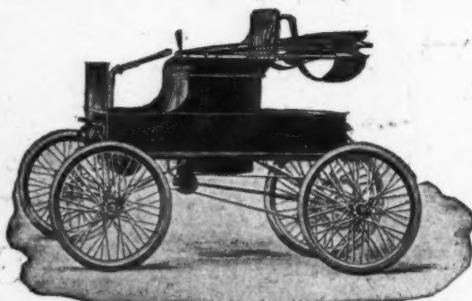
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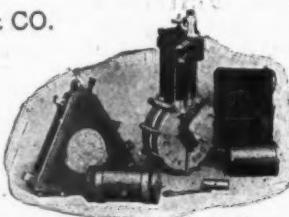
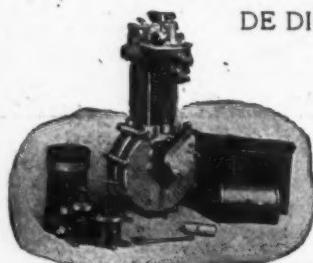
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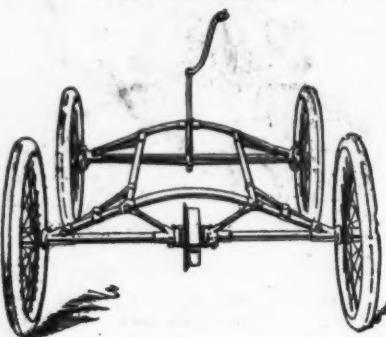
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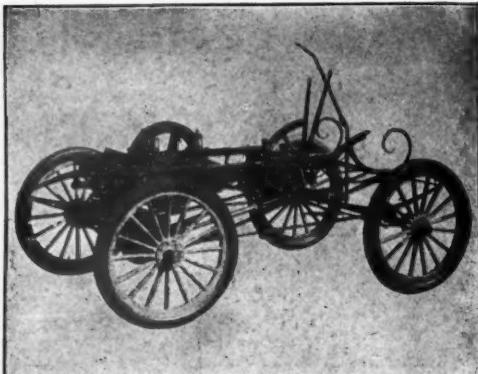
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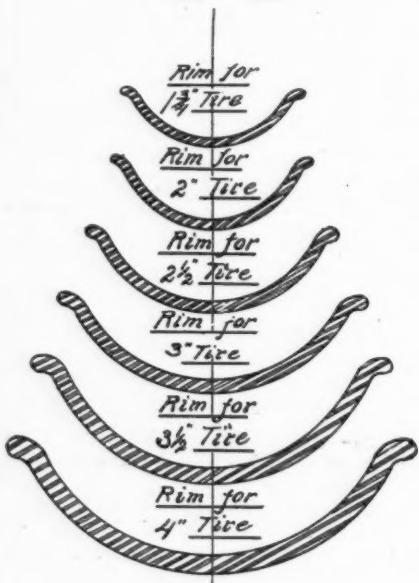
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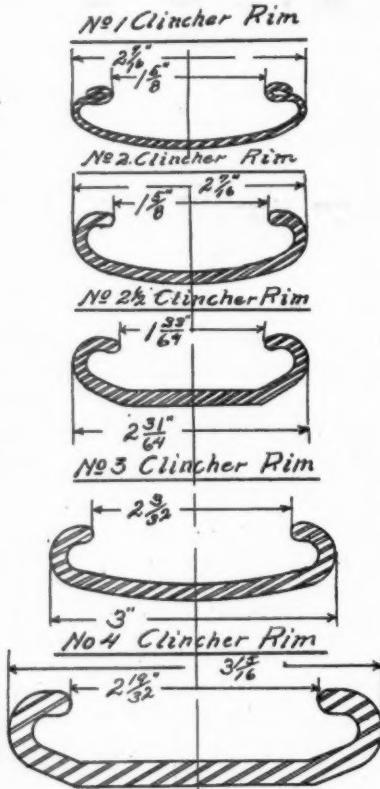
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